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HELPFUL LITERATURE FOR STUDENTS OF NORTH AMERICAN HEPATICAE.

CAROLINE COVENTRY HAYNES.

Having been asked to give a list of books and pamphlets that I find most useful in the study of hepatics, I have prepared the following. It may appear long but the fact of there being no up-to-date manual obliges one to consult many authorities in order to comprehend our North American flora.

Among Dr. A. W. Evans' publications are the following, bearing directly upon this flora:

"A Revision of the North American Species of *Frullania*." Trans. Conn. Acad. Vol. X. May, 1897.

"The Lejeuneae of the United States and Canada." Mem. Torrey Club, Vol. 8. No. 2, 1902.

"Notes on the North American Species of *Plagiochila*." Bot. Gaz. Vol. 21. April, 1896.

"*Odontoschisma Macounii* and its North American Allies." Bot. Gaz. Vol. 36. Nov. 1903.

"A New Hepatic from the Eastern United States." Bot. Gaz. Vol. 34. Nov. 1902. (*Diplophyllia apiculata* Evans).

"Notes on New England Hepaticae" have appeared from time to time in RHODORA. Dates of publications as follows: Nov. 1902, Aug. 1904, Sept. 1904, March, 1905, Feb. 1906, and March, 1907. These are critical notes.

"List of New England Plants, -- Hepaticae" appeared in RHODORA, June, 1903.

"Studies Among our Common Hepaticae" came out in THE PLANT WORLD as follows: Vol. I. No. 7, April, 1898; Vol. I. No. 9, June, 1898; Vol. I. No. 12, Sept. 1898; Vol. II. No. 5, February, 1899. These deal with four species and are beautiful models of the correct way of taking up the study.

The works of Dr. Marshall A. Howe on the Hepaticae are also of the first importance:

"Hepaticae and Anthocerotes of California." Mem. Torrey Club, Vol. 7, 1899.

"North American Species of *Porella*." Contributions from the Depart. Bot. Col. Univ. No. 126, 1897.

"New American Hepaticae." Bull. Torrey Club, Vol. 25, No. 4, April, 1898. (*Scapania heterophylla* and *Riccia trichocarpa*).

"Notes on Californian Bryophytes" appeared in ERYTHEA, Vol. II. No. 6, June, 1894. Vol. IV. No. 3, March, 1896. Vol. V. No. 8, Aug. 1897.

Dr. Lucian M. Underwood's pioneer work is also of great interest and value:

"Descriptive Catalogue of the North American Hepaticae, North of Mexico." Bull. Illinois State Laboratory, Vol. II. 1884. Gives 231 species.

"Notes on our Hepaticae." No. 1. Northern Species, Bot. Gaz. 14: 1889. No. 2. The Genus *Riccia*, Bot. Gaz. 19: 1894. No. 3. The Distribution of the North American Marchantiaceae, Bot. Gaz. 21: 1896. No. 4. The Genus *Fossombronina*, Bot. Gaz. 21: 1896.

"In Gray's Manual," Sixth Edition, 1890, the Hepaticae were elaborated by Dr. Underwood and give 144 species. This list needs revision and many additions.

Below we give several good reference books that are generally to be found in University and Botanical libraries:

Stephani, "Species Hepaticarum" which is being published in Bull. de l'Herbier Boissier.

Schiffner, in "Engler and Prantl, Die Natürlichen Pflanzenfamilien," gives the sequence of genera usually followed.

"Synopsis Hepaticarum," by Gottsche, Lindenberg and Nees, 1844.

Karl Müller is publishing a comprehensive work in Rabenhorst's "Kryptogamen-flora von Deutschland, Oesterreich, etc." Vol. 6.

"Monographie der Lebermoosgattung Scapania Dum." by Karl Müller.

"Kryptogamenflora der Mark Brandenburg, Leber und Torfmoose," by C. Warnstorf.

"On Cephalozia" by Richard Spruce.

"Hepaticae of the British Isles," by Pearson.

"Contributions to the Biology of the Hepaticae," by F. Cavers. England, 1904.

"Hepatics of the British Islands," by Canon Henry Wm. Lett.

"A Revised Key to the Hepatics of the British Islands," by Symers M. Macvicar.

"Mosses with a Hand-Lens." Second Edition, Including the Hepatics. A. J. Grout. New York City.

ALNUS OREGANA AS CRYPTOGAMIC HOST.

A. S. FOSTER.

When the virgin forest of the Lower Columbia Region is removed, Nature, in her efforts at reforestation, covers the ground the first season with thistles and fireweed, and brambles, ferns and mosses, especially if the area has been burned over, play their part in reclaiming the territory. But in two or three years the western alder, *Alnus Oregana*, has sown its seeds everywhere, and the following year the tract becomes an alder thicket. Indeed it has already occupied the swampy places, as it does not object to "wet feet" and may have been an under-shrub, which is now able to lift its head above its neighbors and ready to encroach upon the hemlocks and spruces. This alder seems hardy, but seldom lives to any great age, because it cannot overtop the lofty spruce.

In its younger stages, the smooth, clean bark of the alder makes an excellent place of lodgement for the spores of lichens. When only five or six years old—a mere pole—it begins to show the markings of the thalloid forms, some of which in their juvenile stages are not unlike the work of a rodent. Almost every part of the trunk becomes encrusted with thalli giving to a young grove a mottled appearance.

Various mosses also, of the same species nearly that Dr. Bailey enumerates as growing on the large-leaved maple (See BRYOLOGIST 6:3, 1903), may